## ABSTRACT

The invention concerns processes enabling prokaryotic or eukaryotic cells to acquire the capacity to produce proteins whereof the amino acid sequences comprise at least a non-standard amino acid, methods for selecting said cells, methods for producing and purifying said proteins and cells and proteins obtained by said methods and processes. The invention also concerns uses of said cells and proteins in various fields such as therapeutics, cosmetics, diagnosis or biosynthesis or biodegradation of organic compound